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(21) Application No. 41607/71 (22) Filed 7 Oct. 1971

(23) Complete Specification filed 5 Jan. 1973

(44) Complete Specification published 8 Jan. 1975

(51) INT. CL.⁷ B67D 5/06//1/02 1/04

(52) Index at acceptance

A4T 24B1A 24C1A 24C2X 24D10 24D17 24E12 24E3
24E6 24E8

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(54) IMPROVEMENTS IN OR RELATING TO LIQUID
CLEANSING SYSTEMS

(71) We, BASS CHARRINGTON LIMITED, a British Company, of 54/60 Baker Street, London, W.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to liquid cleansing apparatus and is particularly but not exclusively concerned with the cleansing of beer dispensing apparatus. However, the invention may well lend itself to the cleansing of other liquid dispensing or receiving apparatus, especially apparatus associated with the catering trade, as for example soft drink dispensing apparatus, or machine milking apparatus, and allied apparatus for processing milk, as used in mechanised dairies.

In some large public houses and hotels it is not uncommon for several bars to be continually in use and these may be widely separated and perhaps in different rooms on different floors. Moreover, the various bars may be adapted to dispense different kinds of beer drawn from containers having different pipe connections and container couplers. Some of the bars may draw beer by means of the traditional manual pumps, others may utilise pressure systems wherein the motive power for the beer is CO₂ gas under pressure, or an electric pump. Thus container fittings and other dispensing apparatus are not standardised and the dispensing apparatus for different kinds of beer involves the use of independent systems.

In order to maintain high standards of cleanliness in respect of beer dispensing apparatus it is essential that the entire apparatus is frequently cleansed with detergent and subsequently flushed with water. Hitherto it has been necessary for bar staff to carry buckets of detergent from

[Price 25p]

bar to bar and to cleanse separately the particular apparatus for dispensing each kind of beer by pumping the detergent from the bucket. In some cases slightly more sophisticated methods have been used, such as blowing or sucking small sponges through the pipelines or even using a portable manifold to which the several beer lines can be connected. For a number of reasons the prior methods are unsatisfactory, and particularly because the process of cleansing bar dispensing apparatus and the beer lines from the containers by these methods is laborious and very time consuming and hence they are not conducive to the maintenance of high standards of cleanliness.

It is an object of the present invention to provide liquid cleansing apparatus for use in combination with a liquid dispensing or receiving apparatus which overcomes or reduces the aforementioned difficulties encountered in respect of beer dispensing equipment at least.

According to one aspect of the present invention we provide liquid cleansing apparatus for use with liquid dispensing or receiving apparatus, which apparatus comprises a plurality of spaced apart service points each connected by means of a pipeline to a coupler adapted to be connected to a container for liquid which is to be dispensed or received, the cleansing apparatus comprising a tank for containing the cleansing liquid, a cleansing liquid main pipeline leading from the tank to a plurality of valved connections, adaptors for the couplers to connect the service points and their associated pipelines to respective valved connections and means for forcing the cleansing liquid from the tank through the rest of the cleansing apparatus and into the dispensing or receiving apparatus.

According to another aspect of the invention we provide beer dispensing apparatus

comprising a plurality of spaced apart beer dispense points each connected by means of a pipeline to a coupler adapted to be connected to a container for beer, in combination with liquid dispensing apparatus in accordance with the last preceding paragraph.

Preferably that part of the cleansing liquid main pipeline including the valved connections is mounted on a support which is fixedly mounted on a wall or the ceiling of a room in which the couplers and cleansing apparatus are sited. Alternatively each valved connection may be sited adjacent to the particular service for which it may be required, which may be in another part of the building on a higher or lower level or even an adjoining building.

Preferably each of the valved connections incorporates a valve of the snap-in kind and each of the adaptors incorporates a portion of snap engagement with one of the valves, the valves being normally closed but are opened by engagement with the adaptors. The body of each valve may be made from a plastics material and house a stainless steel spring and ball bearings. However, valves made largely from non-ferrous metal such as brass or gun-metal might also be suitable for use with detergents.

The liquid cleansing system preferably employs the same means for forcing the cleansing liquid through the pipes and other associated dispensing or receiving apparatus as that used for dispensing or receiving a liquid in normal use, but may also be arranged to utilise an independent motivating force.

One embodiment of the invention will now be described by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows beer dispensing apparatus in combination with cleansing apparatus in accordance with the invention, and

Figure 2 shows the coupling arrangements between the beer dispensing apparatus and the cleansing apparatus of Figure 1.

Figure 1 shows beer dispensing apparatus in a single bar serving four kinds of beer, one from a cask 1 and three from kegs 2, 3 and 4. Each keg or cask stands on a thrall 5 in a cellar. Other forms of supply containers for the beer may also be used such as for example beer tanks; and the kegs, casks or tanks may be mounted in a stillage or may rest on the cellar floor. The cask 1 and kegs 2, 3, 4 are normally connected in use to a beer pull 6 or respective dispense taps 7, 8, 9 by pipes 10 of plastics material and suitable couplers 11, 12, 13, 14. In Figure 1 the couplers are shown connected to a cleansing system but when beer is being served in the bar the couplers are connected to openings in the ends of

the cask or kegs. The beer is raised from the cask or kegs by means of manual suction pump as in the case of the cask using beer pull 6, or by CO₂ gas pressure as in the case of the kegs. A CO₂ gas pressure line 15 is connected to the couplers associated with the kegs. Other means may be used for raising beer such as for example air pressure, electric pump or meter.

Four different kinds of metal cask and keg are shown in Figure 1 each requiring a different kind of coupler. The couplers are shown in Figure 2. For ease of description the couplers 12, 13 and 14 will be referred to by their trade names, SANKEY coupler, BASS GRUNDY coupler and ALUMASC coupler respectively. The ALUMASC coupler is also known as a GUINNESS coupler.

Coupler 11 is a standard hexagonal "beer nut" which screws directly onto a cask connection 16 as is usual in the case of beer drawn by manual suction pump. The SANKEY coupler 12 provides a CO₂ gas feed connection 17, a beer supply pipe connection 18 and a keg connecting portion 19 which automatically opens a flow valve in the keg 2 when connected to the keg. The BASS-GRUNDY coupler 13 comprises a conical housing 20 which makes a sealing connection with the keg 3 and provides a gas connection 21 and a beer supply pipe connection 22; it also includes a lever 23 for opening a flow valve in the keg 3 once the seal is made. The ALUMASC coupler 14 has a gas feed connection 24, a beer supply connection 25 and a beer supply on/off cock which incorporates a pair of poppet valves.

The cellar is also fitted with cleansing apparatus in accordance with the invention. The apparatus comprises a detergent distribution main 27 extending above the thrall 5 and connected at one end to the outlet from an electric pump 28 supplied with detergent from a tank 29. In the illustrated example the tank 29 may hold say 15 gallons of detergent when full and is preferably made of polythene. The detergent distribution main 27 is formed from four lengths of pipe interconnected in series with four T-piece junctions 30. The pipe may be 3.1/8" i.d. PVC. The T-pieces are mounted on a wooden ground which may be say 18 to 24 inches long fixedly mounted on the wall of the cellar. Each T-piece has aligned inlet and outlet ports connected to the main line pipes except for the outlet of the T-piece furthest from the pump which outlet is sealed with a blank plug. A snap-in flow valve 31 and its seal 32 are inserted in a third port in each T-piece. The valves 31 protrude from the T-pieces normal to the main 27 and are arranged to project downwards towards the thrall 5.

Adaptors 33, 34, 35, and 36 are provided for the couplers 11, 12, 13 and 14 respectively, to connect them to the valves 31 in the detergent main 27. In the case of the coupler 11 the adaptor comprises a female cap nut of the form known as a "Y" thread adaptor which can be screwed into the beer nut 11 to plug the end of the respective beer pipe 10. For the purposes of the invention the cap nut is provided with a threaded hole into which a nipple 37 is screwed, the nipple being adapted to snap into connection with a flow valve 31 in the detergent main and open that valve thereby connecting the respective beer pipe 10 to the detergent main. The adaptor 34 for the SANKEY coupler 12 comprises a known form of cylindrical cover which locks onto and seals off the keg connection and is modified to include a nipple 37. The adaptor 35 for the BASS-GRUNDY coupler 13 comprises a disc provided with lugs arranged such that the adaptor can lock into and sealingly engage the coupler 13 when rotated relative thereto. A thread hole in the disc is provided for a nipple 37. The adaptor for the ALUMASC coupler 14 comprises a blanking cap which slides into a channel portion on the coupler 14, seals off the coupler key connection and holds the poppet valves in the open position.

When cleansing the beer dispensing apparatus utilizing the four couplers 11, 12, 13, 14 and adaptors 33, 34, 35, 36 described above by means of the detergent main 27, the cellarman first removes the couplers complete with pipes from their associated casks or kegs. He then connects the corresponding adaptor to each coupler. The nipple 37 of each adaptor is then plugged into the detergent main 27 by way of one of the snap-in valves 31 for the respective services. Since the beer supply pipes and the CO₂ gas supply pipes remain connected to the couplers the detergent tank is in effect taking the place of the four beer containers. Thus detergent from the detergent tank 29 can flow through the pump 28 into each coupler by way of the nipple provided on the adaptor. The bar taps 6, 7, 8, 9 for each beer supply corresponding to the couplers 11, 12, 13, 14 are then opened and the pump 28 switched on to force detergent through each coupler, along the detergent main 27 and out of the dispense taps to drain away after use. After a period of flow from the taps these can be shut and the beer lines and couplers allowed to soak for some 20 to 30 minutes. After this soaking with detergent the flow process is repeated with water for flushing purposes. Thus all four bar services are cleansed simultaneously, and by means of an extended main more bars could receive

the same treatment at the same time.

After flushing, the adaptors and couplers are disconnected from the main, the adaptors are removed from the couplers and the couplers are replaced in the casks or kegs.

Obviously, couplers of types other than those described may be connected to the main by using suitable adaptors, and also couplers all of the same type may be connected. The detergent would of course also pass through coolers or other dispensing equipment incorporated in the dispensing apparatus.

In an alternative arrangement of the cleansing apparatus the detergent tank is designed to be capable of withstanding internal pressures up to 30 psi. The tank is provided with a filling aperture in its upper end which during a cleansing operation is blanked off by a coupler carrying a pipe connected to a CO₂ gas supply which may be a CO₂ main common with the supply to the beer couplers. In operation the tank is pressurised by CO₂ gas to force detergent through the pipes and couplers.

Thus it will be seen that the whole process of cleansing beer dispensing apparatus is greatly simplified. There is no need to break down pipe runs and coupler assemblies as previously and take them to a detergent supply. Moreover the process can be initiated and then left without watching for a period of time, whilst the system either soaks or flushes, which was not possible by earlier methods.

It will be appreciated that the system is adaptable to bar installations in which the beer containers are stowed in places other than the cellar. Also the system can be extended to any number of dispense points which could be in different bars.

WHAT WE CLAIM IS:—

1. Liquid cleansing apparatus for use with liquid dispensing or receiving apparatus which comprises a plurality of spaced apart service points each connected by means of a pipeline to a coupler adapted to be connected to a container for liquid which is to be dispensed or received, the cleansing apparatus comprising a tank for containing a cleansing liquid, a main pipeline leading from the tank to a plurality of valved connections, adaptors for the couplers to connect the service points and their associated pipes to respective valved connections, and means for forcing the cleansing liquid from the tank through the rest of the cleansing apparatus and into the dispensing or receiving apparatus.

2. Liquid cleansing apparatus according to claim 1, in which the means for forcing the cleansing liquid through the apparatus is an electric pump.

3. Liquid cleansing apparatus according to claim 1, in which the means for forcing the cleansing liquid through the apparatus comprises apparatus for applying gas pressure to the cleansing liquid.
- 5 4. Liquid cleansing apparatus according to any one of the preceding claims, in which the valved connections are arranged in series.
- 10 5. Liquid cleansing apparatus according to any one of the preceding claims, in which each of the valved connections incorporates a valve of the snap-in kind and each of the adaptors incorporates a portion for snap engagement with one of the valves, the valves being normally closed and opened by engagement with the adaptors.
- 15 6. Beer dispensing apparatus comprising a plurality of spaced apart beer dispense points each connected by means of a pipeline to a coupler adapted to be connected to a container for beer, in combination with liquid cleansing apparatus in accordance with any one of the preceding
- 20 25 claims.
7. Beer dispensing apparatus according to claim 6 having liquid cleansing apparatus in accordance with claim 3, in which the apparatus for applying gas pressure to the cleansing liquid is arranged to supply CO₂ to both the cleansing liquid tank and to at least some of the couplers.
8. Beer dispensing apparatus according to either claim 6 or claim 7 in which that part of the cleansing liquid main pipeline including the valved connections is mounted on a support which is fixedly mounted on a wall or the ceiling of a room in which the couplers and cleansing apparatus are sited.
- 30 35 40 9. Beer dispensing apparatus substantially as herein described with reference to the accompanying drawings.

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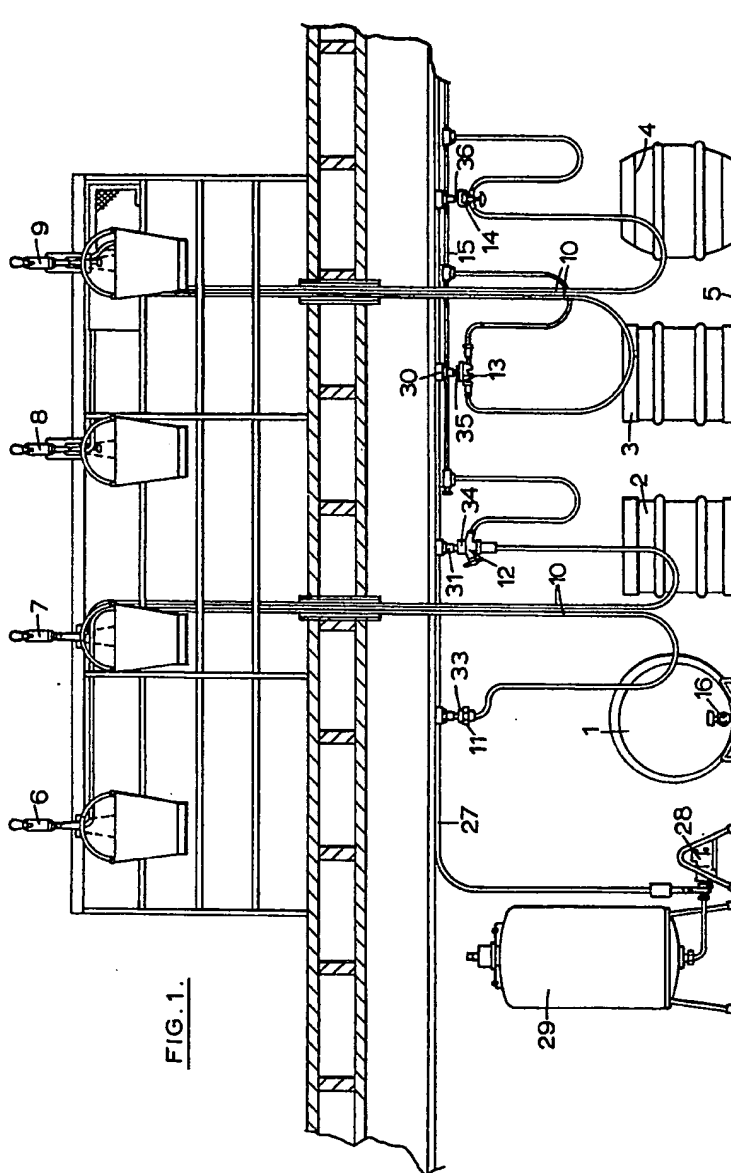


FIG. 1.

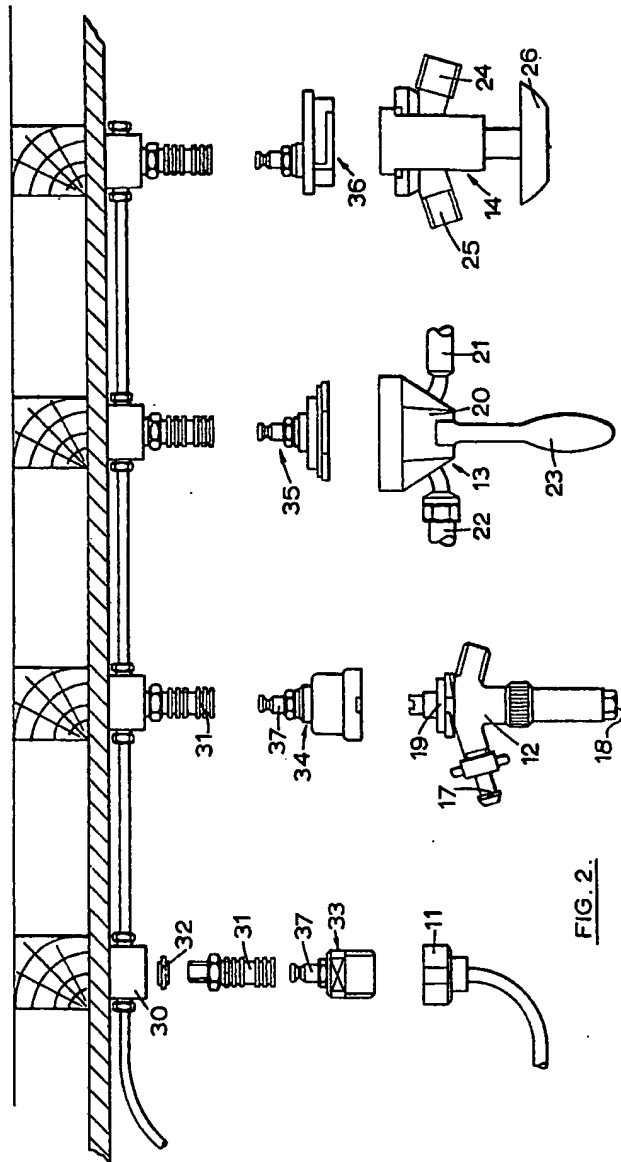


FIG. 2.